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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/920,374	07/31/2001	Christopher M. Jones	CY 0021	4281

7590 01/30/2003

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Suite 235
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San Jose, CA 95113

EXAMINER

RAO, SHRINIVAS H

ART UNIT	PAPER NUMBER
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2814

DATE MAILED: 01/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/920,374

Applicant(s)

JONES ET AL.

Examiner

Steven H. Rao

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 July 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 July 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Priority

The Application as filed does not claim priority from any earlier filed patent application.

Therefore currently the earliest available filling date is the U.S. filling date namely July 31, 2001.

Drawings

Figures 3 A to 3 E should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 to 4 and 6 to 20 are rejected under 35 U.S.C. 102(e) as being anticipated by Chen (U.S. Patent No. 6,303,459 herein after Chen).

With respect to claim 1, a method of verifying a reticle including the steps of : forming a conformal layer over a non-resist deposited layer (Chen figure 1 # 16 over non-resist layer 14) that is formed on a uniform surface (Chen fig. 1 # 10), the deposited layer including the reticle pattern (Chen col. 2 lines 49 to 55) and inspecting the reticle pattern for defects (Chen col. 2 lines 60 to 63).

With respect to claims 2 and 3, wherein the conformal layer comprises a conductive material namely titanium (Chen fig. 1 # 16, col. 5 lines 66 to col. 6 lines 4).

With respect to claim 4, wherein the conformal layer comprises a layer of titanium nitride formed over a layer of titanium. (Chen col. 6 line 5-6 and col. 5 lines 66 to col. 6 lines 4).

With respect to claim 6, wherein conformal layer has a thickness of no more than 1000⁰ A. (Chen col. 6 line 4 500-1000⁰ A).

With respect to claim 7 the deposited layer is silicon oxide (Chen col. 5 lines 59-60).

With respect to claim 8, wherein the deposited layer comprises of layer of undoped silicon dioxide formed on a layer of phosphosilicate glass (PSG). (Chen col. 7 lines 1-3 silicon dioxide layer and col. 5 lines 65 to col. 6 line 5- PSG layer).

With respect to claims 9 and 10 wherein the thickness of the deposited layer is 2500 or 5000⁰ A. (Chen col. 8 lines deposited layer –3000 to 8000⁰ A).

With respect to claim 11, wherein the uniform substrate comprises a silicon substrate . (Chen fig. 1 # 10, col. 5 line 55)

With respect to claim 12, Chen describes a method of verifying a reticle including the steps of : forming a conductive conformal layer greater than 100° A over a deposited pattern layer with a reticle (Chen fig. 1 # 16, col. 6 lines 26 > 100° A over a patterned layer 14 with reticle) and inspecting the pattern in the deposited layer (Chen col. 2 lines 60-66).

With respect to claim 13, wherein inspecting the pattern comprises automatically inspecting the pattern with pattern inspecting equipment (Chen col. 2 lines 58 to 60).

With respect to claim 14, wherein automatically inspecting the pattern includes automatically aligning the wafer in the pattern inspection equipment with the pattern formed in the deposited layer. (Chen col. 2 lines 58 to 64, col. 2 lines 52-55).

With respect to claim 15, wherein the reticle comprises a contact reticle pattern (Chen col. 3 lines 20 to 35).

With respect to claim 16, wherein the patterning of the deposited layer with the reticle includes : patterning a layer of resist formed over the deposited layer with the reticle pattern (Chen col. 3 lines 20-25), etching the deposited layer (Chen figure 3 col. 6 lines 27 to 46) removing the resist (Chen figs. 2 and 3 , during the etching of layer 16).

With respect to claim 17, Chen describes a method including the steps of forming at least one reticle patterned layer on a uniform surface (Chen col.2 lines 50 to 55 and col. 5 lines 54-55 –uniform surface), increasing an inspection contrast between the

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patterned and non-patterned portions of reticle patterned layer by forming a conformal layer over the reticle patterned layer (Chen col. 6 lines 9 to 46) and inspecting the reticle patterned layer (Chen col. 2 lines 50 to 65).

With respect to claim 18, wherein the at least one reticle patterned layer on a uniform surface comprises depositing silicon oxide containing layer (Chen col. 5 lines 59-61).

With respect to claim 19, wherein the conformal layer comprises depositing a conductive conformal layer (Chen col. 5 lines 59-61).

With respect to claim 20, wherein the conductive conformal layer comprises an interconnect adhering layer (Chen col.1 lines 60-61, col. 2 lines 64-66, col. 5 lines 27-30).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen as applied to claims above and further in view of Leedy (U.S. Patent No. 5,985,693 herein after Leedy).

With respect to claim 5, wherein the reticle pattern in the deposited layer includes features having a minimum size L and the conformal layer has a thickness of no more than 2L.

Chen does not specifically mention the minimum size of its reticle pattern.

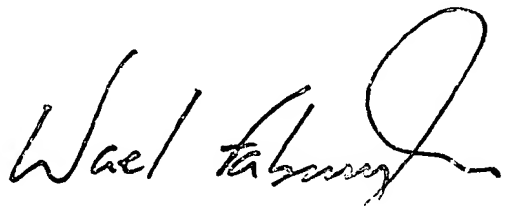
However, Leedy describes in col. 36 lines 34 to 40 describes making images in the size of 25um (L) and in col. 35 lines 9-10 describes the conformal layer of 2000 angstroms (i.e less than $1/2 L$ thick) to allow application of inter connect metallization on both sides of I/C and a method by which thin films can be formed that allow efficient cooling of IC components of the circuit membrane and also formation of three dimensional structures through bonding of circuit membrane IC layers.

Therefore it would have been obvious to one of ordinary skill in the art to combine Leedy's image size (L) to conformal layer thickness (no more than $1/2L$) ratio in Chen's method to allow application of inter connect metallization on both sides of I/C and a method by which thin films can be formed that allow efficient cooling of IC components of the circuit membrane and also formation of three dimensional structures through bonding of circuit membrane IC layers. (Leedy col. 3 lines 50 to col. 4 lines 16).

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Steven H. Rao whose telephone number is (703) 306-5945. The examiner can normally be reached on Monday- Friday from approximately 7:00 a.m. to 5:30 p.m.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0956. The Group facsimile number is (703) 308-7724.

SR
23/01/03


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